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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/508,806	09/21/2004	Armin Bernhard	BAW-0010	3944
23413 7590 05/21/2008 CANTOR COLBURN, LLP 20 Church Street 22nd Floor Hartford, CT 06103				
EXAMINER FLORY, CHRISTOPHER A				
ART UNIT		PAPER NUMBER		
3762				
MAIL DATE		DELIVERY MODE		
05/21/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/508,806

**Applicant(s)**

BERNHARD, ARMIN

**Examiner**

CHRISTOPHER A. FLORY

**Art Unit**

3762

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 April 2008.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5, 7, 8 and 10-12 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-5, 7, 8 and 10-12 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Arguments***

1. Applicant's arguments, see paragraph 2 of page 4, filed 7 April 2008, with respect to the rejection(s) of claim(s) 1 under 35 U.S.C. §101 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection under §101 is made in view of another clause contained within the claim.
2. Applicant's arguments filed 7 April 2008 have been fully considered but they are not persuasive. Claim 1 stands rejected under 35 U.S.C. 112, first paragraph.

Regarding Applicant's arguments that it is well known in the art that disconnection of the ossicular chain does not naturally heal or reconnect, per Applicant's own description of Fig. 7 in Ball'376 (see page 5, paragraph 1 filed 17 September 2007), when the incus and stapes are merely disarticulated but otherwise left intact, natural healing will reconnect the bones as the connective tissue heals. Additionally, it is not inherent or well known in the art that the chain does not naturally heal because the art teaches the contrary (Ball'376, column 10 lines 47-51). The specification of the instant application does not provide a method by which this natural healing may be prevented so that the incus and stapes remain disconnected permanently over time.

3. Applicant's arguments filed 7 April 2008 have been fully considered but they are not persuasive. Claims 1-4, 8, 10 and 11 stand rejected under 35 U.S.C. 102(b) as anticipated by Ball'376 or, in the alternative, under 35 U.S.C. 103(a) as obvious over

Ball'376 in view of Kroll'662 or in view of Brillhart'637. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ball'376 in view of Baumann'115; or alternatively over Ball'376 in view of either Kroll'662 or Brillhart'637, f.i.v. Baumann'115. Claims 7 and 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Ball'376 in view of Lesinski et al. (US Patent 5,531,787) and in view of Leysieffer et al. (US Patent 6,398,717), or alternatively over Ball'376 in view of either Kroll'662 or Brillhart'637, f.i.v. Leysieffer et al.

Regarding Applicant's arguments that Ball'376 does not teach interrupting the ossicular chain such that the incus and stapes, or any replacement thereof, are permanently disconnected and that the incus move independently from the stapes or any replacement thereof, it is noted that the newly amended material is presented in the alternative such that only one condition need be met. As the original rejection stands for the reasons made of record and represented again herein, one of the alternatives is considered to be met and therefore the claims are not distinguishable over the prior art. Additionally, it is noted that several of the embodiments of Ball'376 shown in the figures to do not require the sound transducer be reconnected to the incus, and thus also read on the limitation that the "replacement thereof" is permanently disconnected.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in

the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, both Kroll'662 and Brillhart'637 properly motivate not only permanent disconnection of the ossicular chain but a means by which such a disconnection is operative.

In response to Applicant's argument that Ball'376 does not teach a sound receiver but rather a transducer that processes vibrations, it is noted that sound is vibrational energy, particularly as it applies to sounds entering the ear, such that a vibrational transducer as disclosed in Ball'376 can be considered a sound receiver, as it is receiving the vibrational representation of sound as it enters the ear.

Regarding Applicant's argument of the positive recitation of being configured for a cochlea implant, it is noted that the device of Ball'376 can reasonably be considered a cochlear implant as it is disclosed to enhance the function of the cochlea.

#### ***Claim Rejections - 35 USC § 101***

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claim 1 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The phrase "the sound receiver provides a mounting mechanism on at least one of the ossicles of the ossicle chain" constitutes a positive recitation of the human body. It is suggested that the phrase be changed to read --the sound receiver provides a mounting mechanism configured for attachment to at least one of the ossicles of the ossicle chain--.

***Claim Rejections - 35 USC § 112***

6. Claim 1 stands rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for disconnecting the incus and stapes, does not reasonably provide enablement for permanently disconnecting the incus and stapes. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims. It is considered that the specification is not enabling for permanently disconnecting the incus and stapes because there is no disclosure of a means for preventing the connective tissue between them to heal and reconnect. Per Applicant's own description of Fig. 7 in Ball'376 (see page 5, paragraph 1 filed 17 September 2007), when the incus and stapes are merely disarticulated but otherwise left intact, natural healing will reconnect the bones as the connective tissue heals. Additionally, it is not inherent or well known in the art that the chain does not naturally heal because the art teaches the contrary (Ball'376, column 10 lines 47-51). The specification of the instant application does not provide a method by which this natural healing may be prevented so that the incus and stapes remain disconnected permanently over time.

***Claim Rejections - 35 USC § 102/103***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-4, 8, 10 and 11 stand rejected under 35 U.S.C. 102(b) as anticipated by Ball et al. (US Patent 5,624,376, hereinafter referred to as Ball'376) or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ball'376 in view of Kroll et al. (US 6,540,662, hereinafter Kroll'662) or in view of Brillhart et al. (US 6,585,637, hereinafter Brillhart'637).

Regarding claim 1, Ball'376 discloses a sound receiver from an implantable hearing aid (TITLE; ABSTRACT) comprising an implantable electromechanic transducer which converts the force resulting of an accelerated mass into an electric signal (Figs. 3-5, transducer 100; ABSTRACT); the sound receiver providing a mounting mechanism on at least one of the ossicles in the ossicle chain (abstract; Figs. 8-10; Fig. 5, titanium prongs 52).

Further regarding claim 1, specifically the clause that the sound receiver be rigidly fixed to the malleus or incus, whereby incus and stapes, or any replacement thereof, are disconnected so that the incus can move independently from the stapes or any replacement thereof, the embodiments of Ball'376 shown in Figure 9 can be reasonably interpreted as anticipating this claim limitation. Regarding Figure 9, a partial prosthetic embodiment, Ball'376 shows the sound transducer 100 connected to the incus MM by way of a prosthetic member 38c. Since member 38c and sound transducer 100 form a singular prosthetic device, sound transducer 100 can reasonably be interpreted as being rigidly connected to the incus since subcomponent 38a is rigidly fixed to both the transducer and the incus. Although it is not a direct connection, it is

nonetheless a rigid connection. In this embodiment, the stapes is completely removed from the system. It is very clear that in this case, the incus and stapes are permanently disconnected from one another and are now moving independently. Contrary to Applicant's arguments, removal of the stapes does not in any way suggest that Ball'376 "fails to teach a stapes at all," since the stapes must be taught in order to teach that the stapes is removed. Additionally, removal of the stapes does not prevent Ball'376 to read on the currently amended claims, which simply state that "the incus and stapes are permanently disconnected," which in no way provides necessity of the stapes to remain within the body.

Alternatively, in the same field of endeavor, Kroll'662 teaches that a removal of the stapes (i.e. a permanent disconnect of the incus from the stapes) acts to disarticulate the ossicular chain to prevent feedback and permit the malleus and incus to remain in place, which further aids in preventing damage from acoustical trauma by allowing the natural musculoskeletal defense mechanisms to protect against it (column 5, lines 40-50; column 6, line 51 through column 7, line 7). Similarly, in the same field of endeavor, Brillhart'637 teaches that disarticulation of the ossicular chain creates a feedback barrier to prevent retrograde transmission of sound energy through the external auditory canal and tympanic membrane to the microphone, and further defines an embodiment (Fig. 4) in which the incus and stapes are disarticulated and fixed within the middle ear but not removed with a separation of 2-3 millimeters in order to prevent a rejoining of the two bones (column 5, lines 37-43; column 6, line 62 through column 7, line 21). Therefore, it would have been obvious to one of ordinary skill in the art at the



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time of the invention to modify the system and method of Ball'376 with a permanent disconnection of the incus and stapes as taught by either Kroll'662 or Brillhart'637 to provide the Ball'376 system and method with the same advantages of preventing retrograde feedback of sound energy to the microphone and prevent acoustical trauma by allowing the natural musculoskeletal defense mechanisms to protect against such trauma.

Regarding claim 2, Ball'376 discloses the floating mass transducer comprising a piezoelectric transducer (ABSTRACT; column 3, lines 24-45).

Regarding claims 3 and 11, Ball'376 discloses the transducer and hermetic housing to be made of biologically compatible material (column 7, lines 30-35; column 8, lines 10-21 and 50-55; column 10, lines 15-25).

Regarding claim 4, Ball'376 discloses a metallic conductive housing (column 8, lines 35-55; column 9, lines 30-35).

Regarding claim 8, Ball'376 discloses a vibratory structure placed inside the housing (ABSTRACT).

Regarding claim 10, the embodiments shown in Figs. 8-10, 14, 18 and 19a of Ball'376 can be considered cochlear implants, because they have the function of enhancing the throughput to the inner ear through the oval window, thus enhancing or augmenting the natural function of the cochlea.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ball'376 in view of Baumann et al. (US Patent Publication 2002/0138115); or alternatively over Ball'376 in view of either Kroll'662 or Brillhart'637, f.i.v. Baumann et al.

Regarding claim 5, Ball'376, or Ball'376 v. Kroll'662 or v. Brillhart'637, discloses the invention substantially as claimed, but does not expressly disclose that the sound receiver further comprise an A/D-converter and an impedance transformer inside the housing. In the same field of endeavor, Baumann et al. teaches an implantable hearing aid with both an A/D converter (Fig. 2, A/D converters 30 and 31; paragraphs [37]-[40]) and an impedance transformer (paragraph [66]). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Ball'376 with the A/D converter and impedance transformer of Baumann et al. to provide the same advantages of more efficiently processing data and amplifying the input voltage.

11. Claims 7 and 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Ball'376 in view of Lesinski et al. (US Patent 5,531,787) and in view of Leysieffer et al. (US Patent 6,398,717), or alternatively over Ball'376 in view of either Kroll'662 or Brillhart'637, f.i.v. Leysieffer et al.

Regarding claims 7 and 12, Ball'376, or Ball'376 v. Kroll'662 or v. Brillhart'637, discloses the invention substantially as claimed, but does not expressly state that the sound receiver have an entire mass of less than 50 and 30 milligrams respectively. In the same field of endeavor, Lesinski et al. teaches a microsensor with a mass of less than 30 milligrams (column 9, line 50 through column 10, line 7; claim 7). Likewise, in the same field of endeavor, Leysieffer et al. teaches an implant with a total mass of 25 mg on average in order to reduce the forces of inertia upon acceleration by external effects such as impact and vibration and thereby minimize loss of signal in the ossicle chain (column 11, lines 55-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Ball'376 with a mass of less than 30 milligrams as taught in both Lesinski et al. and Leysieffer et al. in order to provide the Ball'376 system with the same advantages of reducing inertial forces and minimizing signal loss in the middle ear (motivation to combine provided by Leysieffer et al., column 11, lines 55-65). In the alternative, it would have been obvious to one having skill in the art at the time of the invention was made to make a sound receiver with a relatively small mass, such as less than 30 milligrams, since it has been held to be within the general skill of a worker in the art to select known materials and components on the basis of their suitability for the intended use, such as light weight, as a matter of obvious design choice. Since the Ball'376 device discloses each and every one of the structural components of the claimed invention, it follows that one of ordinary skill in the art could select light-weight or miniaturized components and materials to construct a transducer of less than 30 milligrams.

***Conclusion***

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher A. Flory whose telephone number is (571) 272-6820. The examiner can normally be reached on M - F 8:30 a.m. to 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angela Sykes can be reached on (571) 272-4955. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christopher A. Flory

21 May 2008

**/George Manuel/**  
Primary Examiner